FHWA-WISC-EIS-03-01-F

PROJECT I.D. 1330-15-00
WISCONSIN STATE HIGHWAY 83
(COUNTY NN TO WIS 16)
WAUKESHA COUNTY, WISCONSIN

FINAL ENVIRONMENTAL IMPACT STATEMENT

And Section 4(f) Evaluation

Submitted Pursuant to 42 U.S.C. 4332 (2)(c) and 49 U.S.C. 303
By the
U.S. Department of Transportation, Federal Highway Administration
and
State of Wisconsin Department of Transportation

Cooperating Agency
U.S. Army Corps of Engineers (pursuant to 33 CFR 230)

APPROVALS

2/22/06 — For Federal Highway Administration
Date

2/21/06 — For Wisconsin Department of Transportation
Date

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ABSTRACT

WIS 83 is an arterial highway serving local and regional traffic in the City of Delafield; Towns of Mukwonago, Genesee, Delafield, and Merton; Villages of Mukwonago, North Prairie, Wales, Hartland, and Chenequa; and unincorporated Genesee Depot. The corridor is transitioning to urban/suburban development and traffic is expected to increase by 60 percent or more by Design Year 2026. Safety concerns include restricted sight distance at several hills, sharp curves and steep grades, limited passing opportunities, inadequate safety clear zones, and numerous access points that contribute to poor traffic operations. Nearly the entire WIS 83 corridor has crash rates that exceed statewide average rates for similar highways. As traffic increases, safety and operational characteristics will continue to deteriorate. Based on expected development growth, regional and county transportation system plans indicate the need for additional transportation capacity in the corridor. The preferred alternative presented in this Final EIS identifies a best fit alignment that would widen the majority of WIS 83. This alignment provides the best long-term transportation service while causing the least damage to the natural and built environment in the WIS 83 corridor.

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National Environmental Policy Act Statement

The National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4332) requires that all federal agencies prepare a detailed Environmental Impact Statement (EIS) for major federal actions that will significantly affect the quality of the human environment. The Federal Highway Administration (FHWA) is therefore required to prepare an EIS for proposals funded under its authority if such proposals are determined to be major actions significantly affecting the quality of the human environment.

The EIS process is carried out in two stages. The **Draft EIS** is circulated for review by federal, state, and local agencies with jurisdiction by law or special expertise, and made available to the public. The Draft EIS must be made available to the public at least 15 days before the public hearing, and no later than the first public hearing notice. A minimum 45-day comment period is provided from the date the Draft EIS availability notice is published in the Federal Register. WisDOT must receive agency and public comments on or before the date listed on the front cover of the Draft EIS unless a time extension is requested and granted by WisDOT. After the Draft EIS comment period has elapsed, work may begin on the Final EIS.

The **Final EIS** includes the following:

1. Identification of the preferred course of action (alternative), and the basis for its selection.
2. Basic content of the Draft EIS along with any changes, updated information, or additional information as a result of agency and public review.
3. Summary and disposition of substantive comments on social, economic, environmental, and engineering aspects resulting from the public hearing/public comment period and agency comments on the Draft EIS.
4. Resolution of environmental issues and documentation of compliance with applicable environmental laws and related requirements.

Final administrative action by FHWA (Record of Decision) cannot occur sooner than 90 days after filing the *Draft* EIS, or 30 days after filing the *Final* EIS with the U.S. Environmental Protection Agency. Both the Draft and Final EIS are full-disclosure documents that provide descriptions of the proposed action, the affected environment, alternatives considered, and an analysis of the expected beneficial or adverse environmental effects.

General Reviewer Information

Major topics are divided into sections, each with a separate page-numbering sequence. Exhibits pertaining to each section are located at the end of the section to minimize disruption of the narrative discussions.

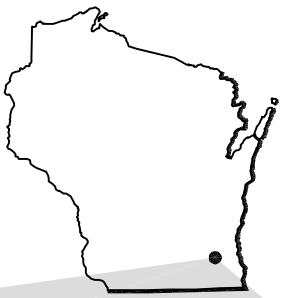
An overall project exhibit showing the preferred alternative is located at the end of the document and is titled Aerial Photo Exhibit. This exhibit is referenced throughout the sections as "Aerial Photo."

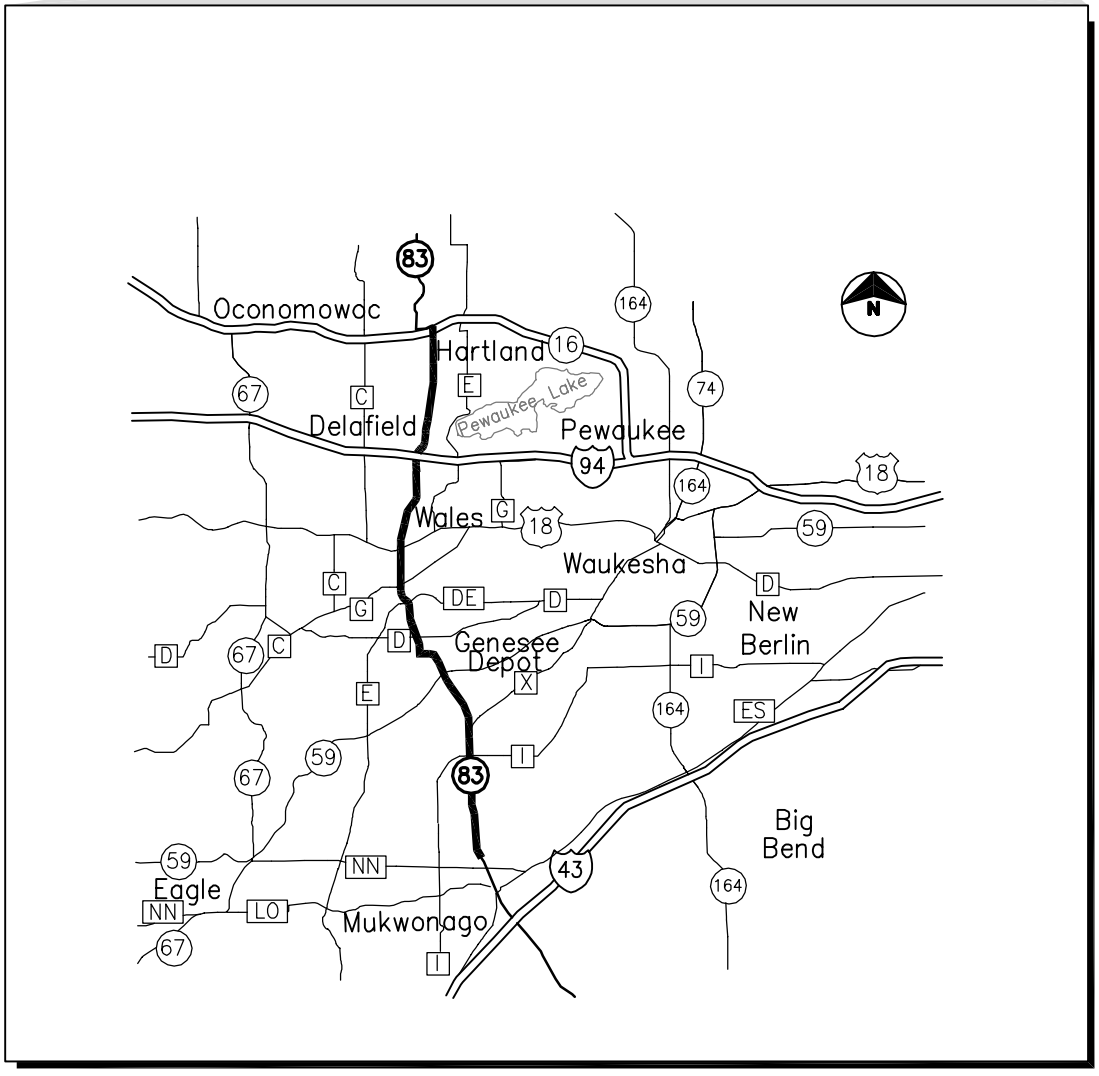
Dimensions, distances, volumes, etc. are shown in English and metric units (in parentheses).

New material in the Final EIS is either highlighted with shading or noted with a vertical line (sidebar) in the right margin.

Project Location

Project 1330-15-00
STH 83
Corridor Study
Waukesha County





CONTENTS

Exhibits

Tables

Exhibits

Tables

Summary

INFORMATION ABOUT FINAL EIS

This Final EIS includes information presented in the Draft EIS which was approved by the Federal Highway Administration (FHWA) on September 2, 2003 for distribution to agencies and the public. The Final EIS also responds to comments on the Draft EIS, summarizes input received as a result of the public hearing and availability of the Draft EIS for review, and identifies the preferred alternative and basis for its selection. Following is a list of format changes between the Draft and Final EIS and revisions or additions based on Draft EIS comments and/or public hearing input. New material in the Final EIS is either highlighted with shading or noted with a vertical line (sidebar) in the right margin.

- **Summary—**Discussion on preferred alternative and an impact summary table for the preferred alternative added.
- **Section 1—Purpose and Need for Proposed Action**. TIP number/description updates.
- **Section 2—Alternatives/Preferred Alternative.** Previously titled "Alternatives" in Draft EIS. Discussion on preferred alternative and two related exhibits added.
- **Section 3—Affected Environment.** Discussions on stream classifications and threatened/endangered/special concern species have been revised based on updated information from DNR.
- **Section 4—Environmental Consequences.** Impacts for the preferred alternative under various environmental factor headings have been highlighted. Updated information on stream classifications and threatened/endangered/special concern species has been provided. The air quality discussion has been revised to include new TIP references and to demonstrate consistency of the preferred alternative with the TIP and SIP. The cultural resources discussion has been updated to indicate no adverse effect to historic properties. Discussion on the Lake Country Trail and Ice Age Trail crossings includes WisDOT's recommendations for a future combined trail crossing.
- **Section 5—Section 4(f) and 6(f) Evaluation.** The proposed action discussion has been revised to identify the preferred alternative. Resource discussions have been revised to reflect the preferred alternative, and the Section 4(f) evaluation has been finalized.
- **Section 6—Measures to Minimize Adverse Effects.** The discussion on threatened/endangered/special concern species has been revised based on updated information and comments from DNR.
- **Section 7—Wetlands, Only Practicable Alternative Finding.** New Final EIS section.
- **Section 8—Comments and Coordination During Draft EIS Preparation.** Previously Draft EIS Section 7, Comments and Coordination.
- **Section 9—Comments and Coordination Following Draft EIS Availability and Public Hearing.** New Final EIS section.
- **Appendix C—Agency Correspondence during Draft EIS Activities.** Previously titled "Agency Correspondence" in Draft EIS.

- **Appendix D—Agency Comments on Draft EIS.** New appendix that includes agency letters on Draft EIS and comment responses.

LOCATION

WIS 83 is located in central Waukesha County. The portion being studied for future improvements generally extends from County NN at Mukwonago to WIS 16 at Hartland. The WIS 83 study area where improvements are being considered begins at the existing 4-lane section about 1/3 mile (0.5 km) north of County NN at the Village of Mukwonago boundary. It extends through the WIS 16 interchange to a point about ¼ mile (0.4 km) west of Chapel Ridge Road at the Village of Chenequa boundary. The distance is approximately 17 miles (27 km). The study area is shown on the location map inside the front cover of the EIS and in more detail on Exhibit S-A.

PROPOSED ACTION

The proposed action is to provide a safe and efficient transportation system in the WIS 83 corridor to serve present and long-term traffic demand while minimizing disturbance to the natural and built environment.

WIS 83 is an important north-south highway serving regional traffic between I-43 at Mukwonago and WIS 16 at Hartland, local traffic between communities, and traffic generated by development along WIS 83 and its side roads. The WIS 83 corridor study will determine how to best meet the long-term transportation needs for the corridor that have been identified through regional land use and transportation planning.

The proposed transportation improvements have the following key objectives:

Address Traffic Demand

Present Annual Average Daily Traffic (AADT) along most of the WIS 83 corridor is high and as planned development continues, there will be a corresponding increase in traffic demand on WIS 83 as well as the surrounding highway network**.**

Existing traffic volumes along the WIS 83 corridor range from 6,900 AADT in the County X to County DE/E segment to 23,200 in the Hillside Drive to County DR/Golf Road segment. Traffic in the entire corridor is expected to increase between 53 and 64 percent by Design Year 2026.

For minor arterials like WIS 83, WisDOT considers Level of Service (LOS) "D", with moderate congestion, to be an acceptable threshold for increasing capacity. Under today's traffic, two segments, County DE/E to Hillside Drive and Meadow Lane to WIS 16, are below the LOS "D" threshold. In 2026, four segments, County NN to County X, County DE/E to Hillside Drive, Hillside Drive to County DR/Golf Road, and Meadow Lane to WIS 16, would fall below the threshold if no improvements were made.

Approximately 6 percent of the total traffic on WIS 83 is comprised of trucks. Under today's traffic volumes, the number of trucks that use the corridor on an average weekday ranges from 420 in the lowest volume segment to 1,400 in the highest volume segment. In 2026, daily truck

traffic is expected to range from 700 to 2,200. The number of trucks in the traffic stream affects traffic operations and safety, and contributes to the level of congestion.

Address Existing Deficiencies

Existing WIS 83 has 11 locations where horizontal curves do not meet current design standards, and there are 21 vertical curves (hills and valleys) that do not meet current design standards for stopping sight distance. There are also 7 locations where the existing roadway grade (percent slope) is steeper than recommended in WisDOT's design standards for rural and urban arterials in areas with rolling terrain. Approximately 75 percent of the WIS 83 corridor has roadway characteristics that do not permit passing.

There are 318 access points from the project's south terminus near County NN to the north terminus at Chapel Ridge Road just north of WIS 16. The average number of access points per mile along the corridor is 19, nearly double the 10 per mile recommended in WisDOT's design guidelines. Cross traffic and turning traffic combined with speed changes and lack of auxiliary lanes reduces operational efficiency, capacity, travel speed, and safety. The number of access points and the average density of access points per mile are also important factors in potential conflicts between slower-moving vehicles, including farm machinery, entering and exiting the highway and faster-moving through traffic.

Improve Safety

A total of 579 crashes occurred along the WIS 83 corridor during 1997 through 2000. Crashes involving property damage accounted for 52 percent of the total and crashes resulting in personal injury accounted for 48 percent. The crash analysis showed that the highest category (57 percent) was rear end crashes; angle crashes ranked second (27 percent), and other unclassified crash types accounted for 21 percent.

All but three segments along WIS 83 had average crash rates higher than statewide average rates. Crash rates in the County DE/E to US 18 and Hillside Drive to County DR/Golf Road segments were substantially higher. The high crash rates in the WIS 83 corridor can be attributed to the lack of adequate turn lanes, short distance between decision points, and motorist inattentiveness. Six of the 27 intersections along WIS 83 had crash rates worse than the national average during 1997 through 2000.

Corridor Preservation

Corridor preservation involves protecting right-of-way for a planned long-term transportation improvement project and precluding the possibility of future highway improvements that would disrupt established and planned community development patterns. The WIS 83 corridor study will provide a recommended functional plan to assist local governments in making land use and development decisions and preserving the land needed for future transportation improvements.

Minimize Environmental Disturbance

The WIS 83 corridor has numerous environmental resources and aesthetic features including wetlands, woodlands, streams, environmental corridors, multi-use recreation trails, parks, historic structures/properties, rolling terrain, open space, and farmland. Preserving these

resources to the extent possible and practical is an important purpose and need factor that was considered in developing and evaluating the transportation improvement alternatives.

Area residents and local officials have also indicated a strong desire to preserve the natural rural beauty of the WIS 83 corridor and the "small town" character of the communities through which it passes. There is also a strong desire to incorporate a multi-use recreation path along WIS 83 segments that have bicycle use today and where there is the potential for providing bicycle/pedestrian connections to adjacent trail systems.

For projects affecting resources protected under the Clean Water Act, the project's purpose and need and reasonable alternatives must consider the *Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material* administered by the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (COE). The guidelines state that dredged or fill material should not be discharged into aquatic ecosystems including wetlands, unless it can be demonstrated that there are no practicable alternatives, that such discharge will not have unacceptable adverse impacts, and that all practical measures to minimize adverse effects are undertaken.

ALTERNATIVES

The range of alternatives presented in the EIS were developed and evaluated based on the purpose and need factors discussed above. Alternatives retained for detailed study and the preferred alternative are summarized as follows.

No Build Alternative

Under the No Build Alternative, WIS 83 would not be widened to provide additional roadway capacity. The existing highway would bear future traffic increases with effects on congestion, mobility, operational characteristics, and safety. Any future improvements would consist of activities that attempt to maintain current service levels, keep the driving surface in good condition, and address safety concerns at spot locations.

The No Build Alternative would fail to address future traffic demand, geometric deficiencies, and safety concerns in the majority of the WIS 83 corridor. However, it would serve as an interim improvement in the County X to County DE/E and WIS 16 to Chapel Ridge Road segments that are not expected to operate below LOS D by Design Year 2026. It also serves as a baseline of comparison to the Build Alternatives in the other WIS 83 segments.

Build Alternatives

Reasonable Build Alternatives were developed in view of regional and county transportation system plan recommendations, meetings with local officials, citizens, and interest groups, input from the project's advisory committee, and coordination with state and federal review agencies.

The alternatives focus on widening WIS 83 to a multi-lane facility and providing a best-fit alignment that balances overall impacts to adjacent development and environmental resources to the extent possible and practical. In the traffic gap segment from County X to County DE/E, including the Genesee Depot area, the reasonable alternatives include the following:

- 2-Lane Reconstruction Alternative
- 4-Lane Corridor Preservation Alternative oriented to the existing alignment
- 4-Lane Corridor Preservation Alternative oriented to the existing alignment plus new alignment west/south of existing WIS 83 at Genesee Depot.
- Combination of the above

Other Alternatives Considered

The EIS also evaluates the following alternatives to providing additional traffic capacity on WIS 83:

- Transportation Control Measures (TCM) that attempt to reduce the number of auto trips through increased transit use, primarily bus ridership
- Transportation System Management (TSM) that involves ways to maximize the efficiency and use of the highway system to help alleviate or postpone the need to increase capacity.

Both of these measures have been thoroughly evaluated at the regional level as part of the *2020 Regional Transportation System Plan* prepared by the Southeastern Wisconsin Regional Planning Commission (SEWRPC). The regional plan's recommendations for providing additional capacity on several highways, including WIS 83, are based on a maximum increase in transit ridership and making TSM improvements to existing highways.

Transit service is not available in the WIS 83 study corridor. There are no plans to extend service to the corridor because land use plans indicate there will not be sufficient ridership density in this portion of Waukesha County to warrant or support viable transit service. The TCM Alternative is not considered a viable option for addressing future traffic demand, geometric deficiencies, and safety concerns on WIS 83.

In general, the types of TSM measures applicable to the WIS 83 corridor would be similar to the spot safety improvements that would occur over time under the No Build Alternative. Although the TSM alternative would partially address some purpose and need issues on a short-term basis, it is not considered a viable stand-alone solution for addressing future traffic demand, geometric deficiencies, and safety concerns on WIS 83.

Preferred Alternative

Table S-1 lists the preferred alternative for each project section. The preferred alternative would widen existing WIS 83 to a 4-lane facility except in the Genesee Depot area (WIS 59 to County DE/E) and from WIS 16 to Chapel Ridge Road where it is recommended to reconstruct the existing 2-lane highway to modern design standards. The preferred alternative would be oriented to the existing highway alignment, and the existing pavement would be incorporated in the proposed improvements where practical.

The preferred alternative identifies a best-fit alignment that widens east, west, or down the middle to minimize impacts to adjacent residences, businesses, cemeteries, historical sites, and environmental resources. It also identifies the best long-term transportation service for communities along and surrounding WIS 83 while minimizing overall social and economic impacts. See EIS Section 2 for more details on the preferred alternative and basis for its selection.

TABLE S-1

WIS 83 Preferred Alternative

WIS 83 Section	Existing Roadway	Preferred Alternative
County NN to County X	2-lane rural	4-lane hybrid urban/rural
County X to County DE/E		
County X to Walnut Street	2-lane rural	4-Lane Corridor Preservation Alternative[1] (4-lane hybrid urban/rural)
Walnut Street to WIS 59	2-lane rural	4-Lane Corridor Preservation Alternative[1] (4-lane urban with center left-turn lane)
WIS 59 to County D	2-lane rural/urban	Reconstruct existing 2-lane highway
County D to County DE/E	2-lane rural	Reconstruct existing 2-lane highway
County DE/E to Hillside Drive		
County DE/E to County G	2-lane rural	4-lane divided urban
County G to Welsh Road	2-lane rural	4-lane undivided urban
Welsh Road to US 18	2-lane rural	4-lane divided urban
US 18 to Hillside Drive	2-lane rural	4-lane hybrid urban/rural
Hillside Drive to County DR/Golf Road	4-lane divided rural/urban	4-lane urban with right turn lanes
County DR/Golf Road to Meadow Lane	4-lane divided (suburban with shoulders)	No change; the existing cross section would be retained; reroute Lake Country Trail (potential to combine with Ice Age Trail) crossing to signalized Golf Road intersection
Meadow Lane to WIS 16	2-lane rural	4-lane hybrid urban/rural
WIS 16 to Chapel Ridge Road	2-lane rural	Reconstruct existing 2-lane highway

Notes:
1. The 4-Lane Corridor Preservation Alternative would not be constructed until or if traffic volumes or safety factors indicate the need. Interim improvements to the existing 2-lane roadway such as reconstruction, resurfacing, or spot intersection improvements would be made over time.

ENVIRONMENTAL IMPACTS

Primary impacts for the Build Alternatives include wetland impacts, stream and floodplain crossings, impacts on threatened/endangered species habitat, loss of farmland, and residential and business displacements. Exhibit S-B lists the impacts that have been quantified for the reasonable Build Alternatives. These and other natural resource, socioeconomic, and indirect effect impacts are discussed in detail in EIS Section 4. Impacts for the preferred alternative are presented in Exhibit S-C.

TIME FRAME FOR PROPOSED ACTION

If a Build Alternative is selected, improvements along the WIS 83 corridor would be prioritized by need and constructed in segments beginning in about 2009 at the earliest. The Meadow Lane to WIS 16 and County DE/E to Hillside Drive segments would have a higher priority due to emerging safety concerns and high traffic volumes and are also dependent on funding and local

cost share agreements. Multi-lane construction from County X to County DE/E is not anticipated to occur within the project's planning timeframe (Design Year 2026). WisDOT will consider splitting the segments shown in the EIS into smaller parts if warranted by need and if funding is available. A two-lane reconstruction from County NN to WIS 59 is planned within the four-lane corridor footprint in 2009 as an interim improvement.

LEAD AGENCY / COOPERATING AGENCY

The Federal Highway Administration (FHWA) is the lead agency for this EIS under the National Environmental Policy Act (NEPA). WisDOT and its consultants are responsible for conducting the environmental and engineering evaluations, carrying out the public involvement activities, coordinating with state and federal review agencies, and preparing the EIS in consultation with FHWA.

The U.S. Army Corps of Engineers is a cooperating agency for the EIS pursuant to the Council on Environmental Quality's Regulations for implementing NEPA (40 CFR, Part 1501.6), and Corps of Engineers permit authority under Section 404 of the Clean Water Act (33 CFR 325). The cooperating agency provision emphasizes early coordination and integrating NEPA and Clean Water Act Section 404 requirements.

OTHER REQUIRED ACTIVITIES

Prior to construction of any Build Alternative requiring discharge of fill material into waters of the United States, including wetlands, authorization would be required from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. Such authorization is contingent on meeting Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material and obtaining water quality certification from the Wisconsin Department of Natural Resources under Section 401 of the Clean Water Act.

Property acquisition and residential or business relocations will be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended). A Relocation Assistance Plan under Section 33.25, *Wisconsin Statutes,* will be required for displaced residences and businesses, and will be subject to approval by the Wisconsin Department of Commerce.

During a future engineering phase, additional coordination with the state Department of Agriculture, Trade, and Consumer Protection (DATCP) will occur to determine the need for an Agricultural Impact Statement under 32.035 Wisconsin Statutes.

WisDOT will coordinate with the Ice Age Park and Trail Foundation (IAPTF) and DNR in a future engineering phase to ensure that the land from the IAPTF parcel is acquired in a manner consistent with Stewardship program requirements and the Stewardship grant and management contract between DNR and the IAPTF.

REGULATORY COMPLIANCE

Planning, agency coordination, public involvement, and impact evaluation for the WIS 83 corridor study have been conducted in accordance with the National and Wisconsin Environmental Policy Acts; the Clean Water Act; the Clean Air Act; Executive Orders on Wetland and Floodplain protection, and Environmental Justice; the Fish and Wildlife Coordination Act; the Endangered Species Act; the National Historic Preservation Act; the Migratory Bird Treaty Act; and other federal and state laws, policies, and procedures for environmental impact analysis and preparation of environmental documents.

This document is in compliance with U.S. Department of Transportation and FHWA policies to determine whether a proposed project will have disproportionate impacts on minority or low-income populations. It meets the requirements of the *Presidential Executive Order on Environmental Justice 12898 – Federal Actions to Address Environmental Justice in Minority and Low-Income Populations.* Neither minority nor low-income populations will receive disproportionate adverse impacts under the Build Alternatives.

LOCAL CONCERNS AND UNRESOLVED ISSUES

There are no known unresolved local concerns with respect to the range of alternatives and impacts considered in the EIS. All known concerns have been addressed to the extent practicable based on the level of engineering detail and environmental information available in the conceptual WIS 83 corridor study phase.

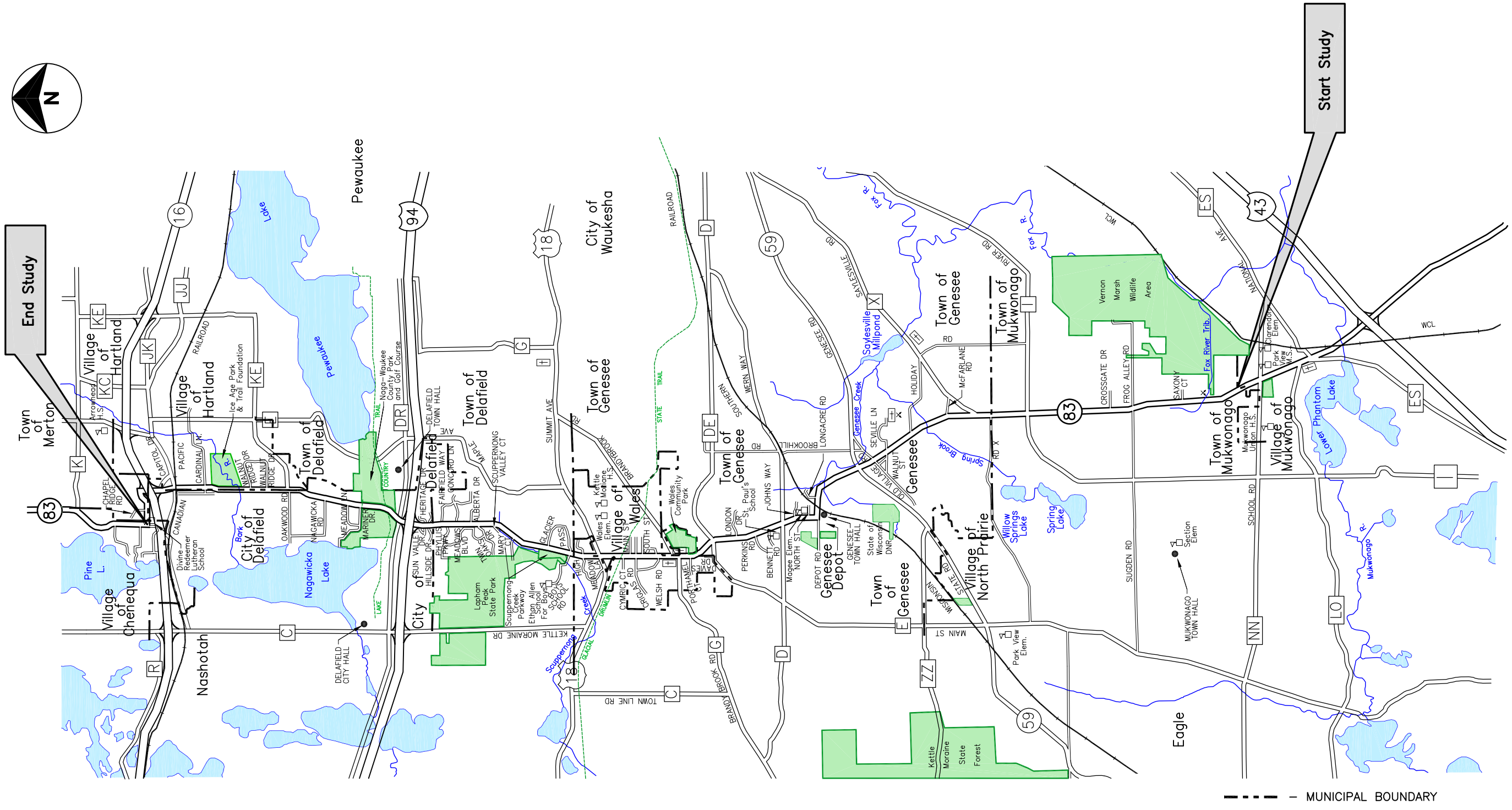


Exhibit S-A
WIS 83 Study Area
County NN to WIS 16

Project Section	From	To	Alternatives	Length, miles (km)	Cost, $ millions (2002 Dollars)[2]			Real Estate							
					Construction	Real Estate	Total	New Right-of-Way, acres (ha)	Farms Affected, number	Farmlands, acres (ha)	Agricultural Impact Statement Required, Yes/No	NRCS Farmland Impact Rating, number	Housing Units, number	Commercial Units, number	Other Buildings, number
1	County NN	County X	4-lane hybrid urban/rural	3.8 (6.1)	12.2	4.1	16.3	50.6 (20.5)	23	33.8 (13.7)	TBD[3]	55	3	0	9
2	County X	County DE/E													
	County X	Walnut St.	2-Lane Reconstruct	1.5 (2.4)	1.8	1.9	3.7	18.9 (7.6)	5	10.7 (4.3)	TBD[3]	55	4	0	7
			4-Lane Corridor Preservation (4-lane hybrid urban/rural)	1.5 (2.4)	4.8	1.8	6.6	18.9 (7.6)	5	10.7 (4.3)	TBD[3]	55	4	0	7
	Walnut St.	WIS 59	2-Lane Reconstruct	0.5 (0.8)	1.4	0	1.4	1.2 (0.5)	0	0 (0)	No	55	0	0	0
			4-Lane Corridor Preservation (4-lane urban with center left turn lane)	0.5 (0.8)	1.8	0.9	2.7	2.2 (0.9)	0	0.1 (0.04)	TBD[3]	55	3	1	2
	WIS 59	County D	2-Lane Reconstruct	1.5 (2.4)	3.2	0.1	3.3	1.4 (0.6)	1	0.6 (0.2)	No	55	0	0	0
			4-Lane Corridor Preservation (4-lane undivided urban)	1.5 (2.4)	4.1	1.4	5.5	3.4 (1.4)	1	0.9 (0.4)	TBD[3]	55	5	3	0
			Combination Off-Alignment Alternative D - 0.8 miles (1.3 km) / 4-Lane Corridor Preservation Alternative	1.6 (2.6)	7.4	1.1	8.5	11.1 (4.5)	1	1.9 (0.8)	TBD[3]	55	2	0	1
	County D	County DE/E	2-Lane Reconstruct	1.1 (1.8)	3.5	0.2	3.7	3.9 (1.4)	2	0.2 (0.08)	TBD[3]	55	0	0	1
			4-Lane Corridor Preservation (4-lane divided urban)	1.1 (1.8)	3.5	0.3	3.8	4.0 (1.6)	2	0.2 (0.08)	TBD[3]	55	0	0	1
3	County DE/E	Hillside Dr.													
	County DE/E	County G	4-lane divided urban	0.6 (1.0)	1.9	0.01	1.9	0.1 (0.04)	1	0.1 (0.04)	TBD[3]	55	0	0	0
	County G	Welsh Rd.	4-lane undivided urban	0.3 (0.5)	0.9	0.1	1.0	1.4 (0.6)	1	0.9 (0.4)	TBD[3]	55	0	0	0
	Welsh Rd.	US 18	4-lane divided urban	0.8 (1.3)	2.8	0.1	2.9	1.1 (0.4)	0	0.1 (0.04)	TBD[3]	55	0	0	0
	US 18	Hillside Dr.	4-lane hybrid urban/rural	2.4 (3.9)	7.7	1.2	8.9	13.9 (5.6)	1	5.0 (2.0)	TBD[3]	55	1	0	2
4	Hillside Dr.	County DR/ Golf Rd.	4-lane divided urban with right turn lanes	0.5 (0.8)	1.6	0	1.6	0	0	0 (0)	No	55	0	0	0
5	County DR/ Golf Rd.	Meadow Ln.	Existing cross section sufficient	1.1 (1.8)	0.4[4]	N/A[5]	0.4[4]	N/A[5]	N/A[5]	N/A[5]	N/A[5]	N/A[5]	N/A[5]	N/A[5]	N/A[5]
6	Meadow Ln.	WIS 16	4-lane hybrid urban/rural	2.6 (4.2)	11.0	2.5	13.5	20.7 (8.4)	8	6.6 (2.7)	TBD[3]	55	4	1	3
7	WIS 16	Chapel Ridge Rd.	2-Lane Reconstruct	0.5 (0.8)	0.6	0.1	0.7	0.9 (0.4)	0	0 (0)	No	55	0	0	0
Totals				17.2 (27.7)	49.0[6]	10.3[6]	59.3[6]	113.6 (46.0)[6]	42[6]	58.0 (23.5)[6]			12[6]	1[6]	22[6]
					53.3[7]	12.7[7]	66.0[7]	117.2 (47.4)[7]	42[7]	58.4 (23.6)[7]			20[7]	5[7]	24[7]
					56.6[8]	12.3[8]	68.9[8]	124.9 (50.5)[8]	42[8]	59.4 (24.0)[8]			17[8]	2[8]	25[8]

Notes:

1. Impacts are based on a best-fit alignment with respect to widening east, west, or down the middle. The best-fit alignment was developed to avoid or minimize impacts to adjacent development, natural resources, and other environmental constraints to the extent practical. See "Alternatives Retained for Detailed Study" in EIS Section 2 for a description of each best-fit alignment.
2. Costs do not include utility relocations, administrative/engineering contingency costs, wetland or other mitigation costs.
3. To Be Determined during further engineering and evaluation of the alternatives.
4. Preliminary cost estimate for a grade separation structure at the Lake Country Trail.
5. Not Applicable. Existing suburban cross section is sufficient.
6. Includes the 2-Lane Reconstruction Alternative from project section 2.
7. Includes the 4-Lane Corridor Preservation Alternative from project section 2.
8. Includes the Combination Off-Alignment Alternative D - 0.8 miles (1.3 km) / 4-Lane Corridor Preservation Alternative from project section 2.

Exhibit S-B

Impact Summary Table for Build Alternatives[1]

Project Section	From	To	Alternatives	Environmental Issues													
				Floodplain Crossings number	Stream Crossings number	Wetlands, acres (ha)	Endangered Species, Yes/No	Upland Habitat, acres (ha)	Primary Environmental Corridors, number	Historic Sites, number	Archaeological Sites, number	Section 106 Memorandum of Agreement, Yes/No	4(f) Evaluation Required, Yes/No	Environmental Justice Issues, Yes/No	Air Quality Permit, Yes/No	Noise Receptors (Design Year 2026), units impacted	Potential Contaminated Sites, number
1	County NN	County X	4-lane hybrid urban/rural	0	1	1.6 (0.6)	Yes	15.2 (6.2)	1	0	1	TBD[3]	No	No	No	31	0
2	County X	County DE/E															
	County X	Walnut St.	2-Lane Reconstruct	1	1	1.0 (0.4)	Yes	7.3 (3.0)	1	0	0	No	No	No	No	14	1
			4-Lane Corridor Preservation (4-lane hybrid urban/rural)	1	1	1.0 (0.4)	Yes	7.3 (3.0)	1	0	0	No	No	No	No	14	1
	Walnut St.	WIS 59	2-Lane Reconstruct	0	0	0 (0)	No	1.2 (0.5)	0	0	0	No	No	No	No	12	0
			4-Lane Corridor Preservation (4-lane urban with center left turn lane)	0	0	0 (0)	No	2.1 (0.8)	0	0	0	No	No	No	No	12	3
	WIS 59	County D	2-Lane Reconstruct	1	1	0 (0)	Yes	0.8 (0.3)	0	0	0	TBD[3]	Yes	No	No	52	0
			4-Lane Corridor Preservation (4-lane undivided urban)	1	1	0.1 (0.04)	Yes	2.4 (1.0)	1	1	1	TBD[3]	Yes	No	No	52	0
			Combination Off-Alignment Alternative D - 0.8 miles (1.3 km) / 4-Lane Corridor Preservation Alternative	1	1	0.4 (0.2)	Yes	7.9 (3.2)	1	1	0	TBD[3]	Yes	No	No	15	0
	County D	County DE/E	2-Lane Reconstruct	0	0	0 (0)	No	3.2 (1.3)	0	0	0	No	No	No	No	20	0
			4-Lane Corridor Preservation (4-lane divided urban)	0	0	0 (0)	No	3.8 (1.5)	0	0	0	No	No	No	No	20	0
3	County DE/E	Hillside Dr.															
	County DE/E	County G	4-lane divided urban	0	0	0 (0)	No	0 (0)	0	0	0	TBD[3]	No	No	No	8	0
	County G	Welsh Rd.	4-lane undivided urban	0	0	0 (0)	No	0.5 (0.2)	0	0	1	TBD[3]	No	No	No	0	0
	Welsh Rd.	US 18	4-lane divided urban	0	0	0 (0)	No	1.0 (0.4)	0	0	0	No	Yes	No	No	50	3
	US 18	Hillside Dr.	4-lane hybrid urban/rural	1	1	2.9 (1.2)	Yes	11.3 (4.6)	1	0	0	No	No	No	No	44	1
4	Hillside Dr.	County DR/ Golf Rd.	4-lane divided urban with right turn lanes	0	0	0 (0)	No	0 (0)	0	0	0	No	No	No	No	11	2
5	County DR/ Golf Rd.	Meadow Ln.	Existing cross section sufficient	0	N/A[5]	N/A[5]	N/A[5]	N/A[5]	N/A[5]	N/A[5]	N/A[5]	No	Yes	N/A[5]	N/A[5]	4	0
6	Meadow Ln.	WIS 16	4-lane hybrid urban/rural	1	1	3.5 (1.4)	Yes	13.0 (5.3)	1	0	0	TBD[3]	Yes	No	No	28	1
7	WIS 16	Chapel Ridge Rd.	2-Lane Reconstruct	0	0	0 (0)	No	0.9 (0.4)	0	0	0	No	No	No	No	0	0
Totals				4[6]	5[6]	9.0 (3.6)[6]		54.4 (22.0)[6]	4[6]	0[6]	2[6]					274[6]	8[6]
				4[7]	5[7]	9.1 (3.7)[7]		57.5 (23.3)[7]	5[7]	1[7]	3[7]					274[7]	11[7]
				4[8]	5[8]	9.4 (3.8)[8]		63.0 (25.5)[8]	5[8]	1[8]	2[8]					237[8]	11[8]

Notes:

1. Impacts are based on a best-fit alignment with respect to widening east, west, or down the middle. The best-fit alignment was developed to avoid or minimize impacts to adjacent development, natural resources, and other environmental constraints to the extent practical. See “Alternatives Retained for Detailed Study” in EIS Section 2 for a description of each best-fit alignment.
2. Costs do not include utility relocations, administrative/engineering contingency costs, wetland or other mitigation costs.
3. To Be Determined during further engineering and evaluation of the alternatives.
4. Preliminary cost estimate for a grade separation structure at the Lake Country Trail.
5. Not Applicable. Existing suburban cross section is sufficient.
6. Includes the 2-Lane Reconstruction Alternative from project section 2.
7. Includes the 4-Lane Corridor Preservation Alternative from project section 2.
8. Includes the Combination Off-Alignment Alternative D - 0.8 miles (1.3 km) / 4-Lane Corridor Preservation Alternative from project section 2.

Exhibit S-B

Impact Summary Table for Build Alternatives[1]

Project Section	From	To	Preferred Alternative	Length, miles (km)	Cost, $ millions (2002 Dollars)[2]			Real Estate							
					Construction	Real Estate	Total	New Right-of-Way, acres (ha)	Farms Affected, number	Farmlands, acres (ha)	Agricultural Impact Statement Required, Yes/No	NRCS Farmland Impact Rating, number	Housing Units, number	Commercial Units, number	Other Buildings, number
1	County NN	County X	4-lane hybrid urban/rural[3]	3.8 (6.1)	12.2	4.1	16.3	50.6 (20.5)	23	33.8 (13.7)	TBD[5]	55	3	0	9
2	County X	County DE/E													
	County X	Walnut St.	4-Lane Corridor Preservation[4] (4-lane hybrid urban/rural[3])	1.5 (2.4)	4.8	1.8	6.6	18.9 (7.6)	5	10.7 (4.3)	TBD[5]	55	4	0	7
	Walnut St.	WIS 59	4-Lane Corridor Preservation[4] (4-lane urban with center left turn lane)	0.5 (0.8)	1.8	0.9	2.7	2.2 (0.9)	0	0.1 (0.04)	TBD[5]	55	3	1	2
	WIS 59	County D	2-Lane Reconstruct	1.5 (2.4)	3.2	0.1	3.3	1.4 (0.6)	1	0.6 (0.2)	No	55	0	0	0
	County D	County DE/E	2-Lane Reconstruct	1.1 (1.8)	3.5	0.2	3.7	3.9 (1.4)	2	0.2 (0.08)	TBD[5]	55	0	0	1
3	County DE/E	Hillside Dr.													
	County DE/E	County G	4-lane divided urban	0.6 (1.0)	1.9	0.01	1.9	0.1 (0.04)	1	0.1 (0.04)	TBD[5]	55	0	0	0
	County G	Welsh Rd.	4-lane undivided urban	0.3 (0.5)	0.9	0.1	1.0	1.4 (0.6)	1	0.9 (0.4)	TBD[5]	55	0	0	0
	Welsh Rd.	US 18	4-lane divided urban	0.8 (1.3)	2.8	0.1	2.9	1.1 (0.4)	0	0.1 (0.04)	TBD[5]	55	0	0	0
	US 18	Hillside Dr.	4-lane hybrid urban/rural[3]	2.4 (3.9)	7.7	1.2	8.9	14.4 (5.8)	1	5.3 (2.1)	TBD[5]	55	1	0	2
4	Hillside Dr.	County DR/ Golf Rd.	4-lane divided urban with right turn lanes	0.5 (0.8)	1.6	0	1.6	0	0	0 (0)	No	55	0	0	0
5	County DR/ Golf Rd.	Meadow Ln.	Existing cross section sufficient	1.1 (1.8)	0.03[6]	N/A[7]	0.03[6]	N/A[7]	N/A[7]	N/A[7]	N/A[7]	N/A[7]	N/A[7]	N/A[7]	N/A[7]
6	Meadow Ln.	WIS 16	4-lane hybrid urban/rural[3]	2.6 (4.2)	11.5	2.5	14.0	20.3 (8.2)	4	6.6 (2.7)	TBD[5]	55	4	1	3
7	WIS 16	Chapel Ridge Rd.	2-Lane Reconstruct	0.5 (0.8)	0.6	0.1	0.7	1.0 (0.4)	0	0 (0)	No	55	0	0	0
Totals				17.2 (27.7)	52.5	11.1	63.6	115.3 (46.7)	38	58.4 (23.6)			15	2	24

Notes:

1. Impacts are based on a best-fit alignment with respect to widening east, west, or down the middle. The best-fit alignment was developed to avoid or minimize impacts to adjacent development, natural resources, and other environmental constraints to the extent practical. See “Preferred Alternative” in EIS Section 2 for a description of each best-fit alignment.
2. Costs do not include utility relocations, administrative/engineering contingency costs, wetland or other mitigation costs.
3. The hybrid urban/rural cross section has shoulders and ditches outside the driving lanes but uses curb and gutter next to the median. This cross section reduces total right-of-way width by about 25 feet (7.6 meters) compared to a rural cross section. Shoulder curb would be used in some areas to minimize impacts.
4. The 4-Lane Corridor Preservation Alternative would not be constructed until or if traffic volumes or safety factors indicate the need. Interim improvements to the existing 2-lane roadway such as reconstructing, resurfacing, or spot intersection improvements would be made over time.
5. To Be Determined during a future engineering phase.
6. Preliminary cost estimate for rerouting the Lake Country Trail (potential to combine with Ice Age Trail) crossing to signalized County DR/Golf Road intersection.
7. Not Applicable. Existing suburban cross section is sufficient.

Exhibit S-C

Impact Summary Table for Preferred Alternative[1]

Project Section	From	To	Preferred Alternative	Environmental Issues													
				Floodplain Crossings number	Stream Crossings number	Wetlands, acres (ha)	Endangered Species, Yes/No	Upland Habitat, acres (ha)	Primary Environmental Corridors, number	Historic Sites, number	Archaeological Sites, number	Section 106 Resources Affected, Yes/No	4(f) Evaluation Required, Yes/No	Environmental Justice Issues, Yes/No	Air Quality Permit, Yes/No	Noise Receptors (Design Year 2026), units impacted	Potential Contaminated Sites, number
1	County NN	County X	4-lane hybrid urban/rural[3]	0	1	1.6 (0.6)	Yes	15.2 (6.2)	1	0	0	No	No	No	No	31	0
2	County X	County DE/E															
	County X	Walnut St.	4-Lane Corridor Preservation[4] (4-lane hybrid urban/rural[3])	1	1	1.0 (0.4)	Yes	7.3 (3.0)	1	0	0	No	No	No	No	14	1
	Walnut St.	WIS 59	4-Lane Corridor Preservation[4] (4-lane urban with center left turn lane)	0	0	0 (0)	No	2.1 (0.8)	0	0	0	No	No	No	No	12	3
	WIS 59	County D	2-Lane Reconstruct	1	1	0 (0)	No	0.8 (0.3)	0	0	0	No	Yes	No	No	52	0
	County D	County DE/E	2-Lane Reconstruct	0	0	0 (0)	No	3.2 (1.3)	0	0	0	No	No	No	No	20	0
3	County DE/E	Hillside Dr.															
	County DE/E	County G	4-lane divided urban	0	0	0 (0)	No	0 (0)	0	0	0	No	No	No	No	8	0
	County G	Welsh Rd.	4-lane undivided urban	0	0	0 (0)	No	0.5 (0.2)	0	0	1	No	No	No	No	0	0
	Welsh Rd.	US 18	4-lane divided urban	0	0	0 (0)	No	1.0 (0.4)	0	0	0	No	Yes	No	No	50	3
	US 18	Hillside Dr.	4-lane hybrid urban/rural[3]	1	1	2.1 (0.8)	No	11.5 (4.7)	1	0	0	No	No	No	No	44	1
4	Hillside Dr.	County DR/ Golf Rd.	4-lane divided urban with right turn lanes	0	0	0 (0)	No	0 (0)	0	0	0	No	No	No	No	11	2
5	County DR/ Golf Rd.	Meadow Ln.	Existing cross section sufficient	0	N/A[7]	N/A[7]	N/A[7]	N/A[7]	N/A[7]	N/A[7]	N/A[7]	No	Yes	N/A[7]	N/A[7]	4	0
6	Meadow Ln.	WIS 16	4-lane hybrid urban/rural[3]	1	1	3.5 (1.4)	No	12.6 (5.1)	1	0	0	No	Yes	No	No	28	1
7	WIS 16	Chapel Ridge Rd.	2-Lane Reconstruct	0	0	0 (0)	No	1.0 (0.4)	0	0	0	No	No	No	No	0	0
Totals				4	5	8.2 (3.3)		55.2 (22.3)	4	0	1					274	11

Notes:

1. Impacts are based on a best-fit alignment with respect to widening east, west, or down the middle. The best-fit alignment was developed to avoid or minimize impacts to adjacent development, natural resources, and other environmental constraints to the extent practical. See "Preferred Alternative" in EIS Section 2 for a description of each best-fit alignment.
2. Costs do not include utility relocations, administrative/engineering contingency costs, wetland or other mitigation costs.
3. The hybrid urban/rural cross section has shoulders and ditches outside the driving lanes but uses curb and gutter next to the median. This cross section reduces total right-of-way width by about 25 feet (7.6 meters) compared to a rural cross section. Shoulder curb would be used in some areas to minimize impacts.
4. The 4-Lane Corridor Preservation Alternative would not be constructed until or if traffic volumes or safety factors indicate the need. Interim improvements to the existing 2-lane roadway such as reconstructing, resurfacing, or spot intersection improvements would be made over time.
5. To Be Determined during a future engineering phase.
6. Preliminary cost estimate for rerouting the Lake Country Trail (potential to combine with Ice Age Trail) crossing to signalized County DR/Golf Road intersection.
7. Not Applicable. Existing suburban cross section is sufficient.

Exhibit S-C

Impact Summary Table for Preferred Alternative[1]